

General Comments:

1) The RWQCB has concerns regarding radiological impacts to water quality at LBNL. Tritium concentrations in groundwater in the area near the National Tritium Labeling Facility (NTLF) are elevated above background concentrations and, in a one groundwater monitoring well, exceed United States Environmental Protection Agency's (EPA's) tritium Maximum Contaminant Level (MCL) for drinking water. The source of the tritium in groundwater is identified in the Draft Final RCRA Facility Investigation Report, Feb. 1997, as the NTLF stack, an atmospheric emission permitted by EPA under National Emission Standards for Hazardous Air Pollutants (NESHAPs). The RWQCB is specifically concerned that tritium impacts to groundwater be included as part of EPA's hazard ranking system evaluation of risks to human health and the environment. For quality assurance and technically defensible results, a complete evaluation of all tritium exposure pathways from known and potential sources through all media including groundwater to existing and potential receptors must be performed using existing and the new data to be collected as part of this tritium sampling plan.

2) Please note that the San Francisco Bay Basin Water Quality Control Plan (Basin Plan) identifies existing beneficial uses of the East Bay Plain groundwater underlying LBNL as: Municipal and Domestic water supply; Industrial Process water supply; Industrial Service water supply; Agricultural water supply; and Freshwater replenishment supply. A risk assessment without an evaluation all these existing and/or potential beneficial uses of groundwater and the associated exposure pathways is incomplete.

3) While the tritium emissions from the stack met EPA's NESHAPs requirements, the emissions are identified as the tritium source of existing groundwater contamination and are potentially a continuing source further impacting groundwater. RWQCB recommends LBNL focus their efforts on pollution prevention and ongoing source reduction. By proactively addressing the tritium, RWQCB hopes to avoid a situation where concentrations increase and trigger a corrective measure study which will be of limited value due to the lack of remedial technologies presently available to effectively remediate tritium in groundwater. What options will LBNL or EPA evaluate in order to address this situation? Will LBNL recommend EPA reevaluate the standards to be protective of groundwater quality and provide LBNL with new emission standards, or will LBNL evaluate a reduction of the total mass of the tritium emission even without such a regulatory requirement?

Specific Comments:

1) Page 4, Sec. 1.1, Para. 2: Text should be revised to reflect that tritium concentrations in groundwater samples collected near the NTLF exceed background concentrations and samples collected in Monitoring Well, MW 75-97-5, south of the NTLF, have continually exceeded the drinking water tritium MCL of 20,000 pico-Curies per liter (pCi/l) and may require corrective action. The following table presents the highest tritium concentrations per recent groundwater

sampling events from Monitoring Well, MW 75-97-5:

1 st Qtr. 99	2 nd Qtr. 99	3 rd Qtr. 99	4 th Qtr. 99	1 st Qtr. 00
28,200 pCi/l;	31,503 pCi/l	24,991 pCi/l	26,211 pCi/l	27,047 pCi/l

2) Page 4, Sec. 1.1, Para. 3: Sampling and Analysis Plan investigation objectives should also include an evaluation of impacted groundwater to evaluate potential risk to human health and the environment. An investigation of tritium contained in soil, surface water, sediment, ambient air but not groundwater will leave a significant exposure pathway unaddressed for any future risk assessments. Without a complete evaluation of all exposure pathways from the known and potential sources of tritium through air, soil, soil gas, and groundwater to existing and potential receptors as identified in the Basin Plan beneficial uses, the risk assessment model will not meet the QAQPJP objectives.

3) Figure 2.1: Revise chart to reflect RWQCB involvement and any other agency changes.

4) Page 9, Sec. 2.1.2: Revise text to include: RWQCB may provide recommendations if water quality objectives are impaired.

5) Page 11, Sec. 2.2, Para. 2: How do recent soil gas and groundwater tritium data fit the LBNL human health risk assessment (HHRA) exposure concentration model utilized in 1997? What are the Ecological Risk Assessment results with respect to tritium? Were the following issues addressed in the 1997 HHRA?

- Identification of all existing and potential groundwater beneficial uses
- Land or groundwater use restrictions;
- Identification of horizontal and vertical preferential pathways;
- Evaluation of potential tritium sources such as sanitary sewer or storm water pipelines;
- Characterization of risk associated other radionuclides other than tritium;
- Determination of background and ambient conditions.

6) Page 16, Sec. 2.3: Stating no decision rules will be associated with a total tritium concentration appears to be a decision rule in and of itself, by limiting what analytical data that will be used in the decision process. This decision should be detailed in Section 2.4.

7) Page 17, Sec. 2.4: Provide text describing the rationale for selecting specific analytical methods as part of a decision rule. Section 2.3 references this section and the text should discuss what is actually being sampled and why, weighing advantages and disadvantages, i.e., total tritium, tritiated water vapor, tissue-free water tritium, or organically bound tritium.

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